

Appendix H: Recreation at Waldo Lake: An Examination of User Characteristics, Behaviors, and Attitudes

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Introduction

People go to lakes to participate in a variety of recreational activities such as fishing, motorized and non-motorized water travel, camping, viewing natural features, viewing wildlife, picnicking, etc. The popularity of such areas for recreational use has led to a range of environmental impacts that can disrupt the overall health of the ecosystem and also cause dissatisfaction and conflict among different user groups. Waldo Lake, located in the Willamette National Forest in central Oregon, receives several thousand visitors during the summer months who come to participate in these types of activities.

Understanding the noise-related and crowding/conflict issues at Waldo Lake is important in determining potential alternative methods of management that might help reduce the negative effects of these concerns. Communication and compromise between management and recreational users can help assure the continued satisfaction of visitors without sacrificing the overall quality of the lake and its attributes.

The purpose of this investigation was to examine user characteristics, behaviors and attitudes at Waldo Lake, Oregon. Possible management options pertaining to motorized boating activities at Waldo Lake were also explored as a part of this study, which was done in conjunction with the National Visitor Use Monitoring (NVUM) initiative of the USDA Forest Service. Under this initiative, recreational use studies are being conducted in all National Forest units, with twenty-five percent of the national forests conducting surveys each year over a four-year period.

Methodology

Data were collected through an on-site interview survey designed to gather information about several aspects of recreational use at Waldo Lake from the varied user groups in the area. The data presented here include a total of 430 completed surveys obtained at Waldo Lake during the period of May 20 thru August 1, 2003. During each six to eight hour sampling period, different types of visitor sites (i.e. campsites, boat ramps, trailheads, etc.) were observed and the areas that were experiencing a higher level of use were targeted for administering the survey at that time. Therefore, the sample for this study consists of both land and water-based recreation visitors participating in both motorized and non-motorized boating, hiking, camping, and other day use activities.

Thanks to...

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Executive Summary

- Waldo Lake attracts thousands of visitors annually, consisting of various user groups including both land and water-based recreationists.
- A total of 430 completed surveys were collected from respondents at campsites, boat ramps, and trailheads at Waldo Lake. Respondents were participating in motorized and non-motorized boating, hiking, camping, and other day use activities.
- The majority of respondents were males and had visited Waldo Lake in the past.
- Nearly all of the respondents were residents of Oregon and traveled an average distance of 232 miles to visit Waldo Lake.
- The respondents tended to be in large groups (mean number of people=4.36) and spent an average of 3.37 days at Waldo Lake on their trip.
- Respondents participated in a variety of activities at Waldo Lake. The primary activity that was noted most often and participated in by nearly all of the respondents was general recreating/relaxing/hanging out.
- Nearly three-quarters of respondents used some sort of watercraft on their trip to Waldo Lake.
- Many types of motorized and non-motorized watercraft were used at Waldo Lake, including canoes, inflatable boats, kayaks, sailboats, fishing boats, etc. The largest proportion of respondents used a canoe as their main type of watercraft.
- In this study, Waldo Lake boaters were classified based on the primary source of power for their primary boat. Those using gas-powered boats for their primary watercraft were classified as motorized boaters while those using other power sources were classified as non-motorized boaters.
- Over half of the Waldo Lake boaters used a paddle/oar as their primary boat power, while a quarter of the respondents reported gasoline as their primary source of power.
- The majority of respondents classified as motorized boat users reported their primary power source as a four-cycle engine.
- Over one-fourth of Waldo Lake boaters used an electric motor as a secondary power source. Nearly all of the electric motor users supported the idea of a solar powered recharge station at the lake's boat ramps that would be funded by a user fee.
- Overall, the respondents enjoyed their trip to Waldo Lake, thought the recreation areas were in good condition, and thought their trip was well worth the money they spent on it.
- Crowding concerns, including the number of people at recreation areas and number of boats on the lake, were not an issue for the respondents. However, respondents visiting Waldo Lake for the first time reported feeling significantly less crowded than more experienced lake users.
- Overall, there was an extremely high level of acceptability regarding the number of people seen at Waldo Lake. Respondents generally reported that the number of other visitors at Waldo Lake neither enhanced nor detracted from their enjoyment.
- Respondents that had visited Waldo Lake in the past were less likely than first-time visitors to agree that the recreation areas and their surroundings were in good condition.
- Motorized watercraft users were more accepting than non-motorized users of the idea of having more watercraft on the lake during their visit.

- Respondents felt that pollution from motorized boating needs to be controlled, yet they reported that the shorelines are in good condition.
- All user groups recognized that motorized boating affects water quality, although non-motorized boaters were most concerned about this.
- Visitor perceptions varied significantly between motorized and non-motorized watercraft users, with non-motorized boaters generally more likely to recognize negative impacts of motorized boating.
- The vast majority of respondents indicated that their recreation experience was not interfered with by motorized noise. However, one-third of the respondents reported that their overall experience at Waldo Lake was negatively impacted by human-induced noise.
- Overall, motorized watercraft users were less likely to report interference of motorized sounds, while non-motorized watercraft users were more likely to report some interference.
- Non-motorized watercraft users were more likely to report that noise from motorized watercraft interfered with their experience, while motorized watercraft users were more likely to report that loud music interfered with their experience.
- Many Waldo Lake repeat visitors did not know whether the amount of boating or environmental quality of the lake has changed within the past few years. About one-fourth felt that the environmental quality had declined, while 6% felt it had improved.
- Motorized watercraft users were more likely to report that the environmental quality has been improving or not changing very much, while non-motorized users were more likely to report that the environmental quality has been declining.
- On a 10-point satisfaction scale, where 1 represents the worst possible experience and 10 represents the best possible experience, visitors reported a mean score of 8.54. Therefore, the respondents were very satisfied with their experiences at Waldo Lake.
- Waldo Lake users strongly supported controlling the level of noise from motorized recreation and establishing “off-limit” zones to protect sensitive areas as potential management actions.
- Waldo Lake visitors generally opposed the ideas of zoning activities for different boat uses at different times and limiting the number of boats on the lake at one time.
- Responses about potential restrictions on motorized watercraft at Waldo Lake were strongly polarized between the user groups.
- Overall, non-motorized watercraft users were more likely to support various controls or limits on motorized water-based activity, while motorized watercraft users generally opposed these actions.
- Respondents were divided on whether certain sections of the lake should be limited to non-motorized boating only, with motorized boaters tending to oppose this idea and non-motorized boaters and land-based users more likely to support it.
- However, the majority of all groups favored controlling the level of noise from motorized recreation and limiting the size and power of boats using Waldo Lake.
- All user groups tended to favor limiting motorized boating to 4-cycle engines only.

Demographics and Trip Visitation Patterns

Table 1. Demographics and Trip Visitation Patterns

	Frequency	Percent
Gender:		
Male	277	66.0
Female	143	34.0
Type of visit:		
First	109	25.4
Repeat	320	74.6
Mean number of days at Waldo Lake during this trip	3.37	
Mean number of days at Waldo Lake in 2002	4.40	
Primary destination Waldo Lake:		
Yes	423	98.6
No	6	1.4
Recreate just at Waldo Lake or other places:		
Just Waldo Lake	332	77.6
Other places	96	22.4
Permanent Home:		
Country:		
USA	428	99.5
Israel	2	0.5
State:		
Oregon	401	93.3
Other	29	6.7
Distance in miles from permanent home to Waldo Lake (recoded):		
1-75	129	31.5
76-150	127	31.0
151-200	108	26.3
201 and up	46	11.2
Mean	231.79	
Median	110.0	
Group size(recoded):		
1	18	4.2
2	148	34.4
3	62	14.4
4	79	18.4
5-30	123	28.6
Mean	4.36	
Part of an organized group:		
Yes	22	5.1
No	407	94.9

Demographics and Trip Visitation Patterns

- Three-quarters of the respondents (75%) were repeat users, and two-thirds of the respondents (66%) were males.
- Nearly all of the respondents (93%) were from Oregon.
- Nearly all of the respondents (99%) indicated that Waldo Lake was their primary destination on this trip, and over three-quarters (78%) were visiting only Waldo Lake on this trip.
- The respondents' average distance traveled from their permanent home was 232 miles (median=110).
- The mean number of days respondents spent at Waldo Lake in 2002 was 4.40, and the mean number of days respondents were spending on this trip was 3.37.
- The respondents tended to be in large groups (mean=4.36), and only a small minority of the respondents (5.1%) was part of an organized group.

Activity Participation

An analysis of activity participation was conducted to understand what recreation activities respondents were participating in, and which activity was their primary activity while at Waldo Lake. The activity format was based on the National Visitor Use Monitoring (NVUM) project so that results can be compared with data collected in other locations within the national forest. The activity participation shown in Table 2 represents the summer season, during which the study was conducted, and thus may differ from what goes on during other seasons of the year.

Table 2. Activity Participation and Primary Activity

	Participation in Activity (Percent)	Primary Activity (Percent)
General/other-relaxing, hanging out, escaping heat, noise, etc.	98.1	40.1
Non-motorized water travel (sailboarding, kayaking, rafting, canoe, etc.) (circle all that apply)	57.4	19.0
Camping in developed sites (family or group sites)	73.7	16.7
Motorized water travel (boats, ski sleds, etc.)	21.4	5.6
Bicycling, including mountain bikes (circle all that apply)	29.8	3.8
Other non-motorized activities (swimming, games, and sports)	75.6	3.3
Other motorized land/air activities (plane, other)	0	3.3
Backpacking, camping in unroaded areas	8.1	2.8
Picnicking and family day gatherings in developed sites (family or group sites) (circle all that apply)	72.6	2.3
Hiking or walking	77.7	1.4

Horseback riding	1.6	1.2
Viewing wildlife, birds, flowers, fish, etc. on NF lands (circle all that apply)	91.6	<1
Viewing natural features such as scenery, flowers, etc. on NF lands (circle all that apply)	96.5	<1
Visiting a nature center or nature trail (circle all that apply)	5.1	<1
Nature study	20.0	<1
4-wheelers, dirt bikes, etc. (circle all that apply)	2.3	<1
Gathering mushrooms, berries, firewood, or other natural products (circle all that apply)	78.6	<1
Fishing—all types	28.6	<1
Visiting historic and prehistoric sites/areas (circle all that apply)	18.4	0
Hunting—all types	<1	0
Driving for pleasure on roads	30.9	0

- Nearly all of the Waldo Lake respondents participated in general relaxing/hanging out (98%), viewing natural features (97%), and viewing wildlife, birds, flowers, fish, etc. (92%).
- Other popular activities at Waldo Lake included hiking or walking (78%), other non-motorized activities (76%), and picnicking and family day gatherings (73%).
- The primary activity that was noted most often was general recreating/relaxing/hanging out (40%), followed by non-motorized water travel (19%) and camping in developed sites (17%).
- Only a small percentage of respondents (6%) participated in motorized water travel as their primary activity.

Table 3. Primary Activity by Type of Visit (Percent)

	Type of Visit		
	First	Repeat	Total
Passive recreation activities	57.8	41.5	45.6
Camping/backpacking	16.5	20.6	19.5
Non-motorized water travel	12.8	21.2	19.1
Active recreation activities	11.0	9.8	10.1
Motorized water travel	1.8	7.0	5.6

- Respondents visiting Waldo Lake for the first time were more likely to participate in passive recreation activities, while respondents who were repeat visitors were more likely to select camping or motorized or non-motorized water travel as their primary activity.
- Passive recreation activities included general relaxing, nature study and the various viewing-related activities.
- No significant differences were noted by gender or by distance traveled.

Watercraft Use

The respondents were asked if they were using watercraft on this trip, and those who replied yes were then asked additional questions seeking specific information about the type of watercraft they were using. These participants were asked to report the type, length, and primary and/or secondary boat power of the watercraft they were using. Electric motor users were asked an additional set of questions pertaining to their battery source and charging methods.

Table 4. Type of Watercraft

	Percent	Length (Mean)
Canoe	23.3	16 ft.
Inflatable boat	14.7	10 ft
Kayak	14.4	16 ft
Runabout (<25 feet)	14.2	19 ft
Sailboat	9.5	20 ft
Other_____	5.6	15 ft
Fishing/Bass Boat	4.7	16 ft
Sailboard	<1	10 ft
Pontoon Boat	<1	N/A
Cruiser (≥ 24ft)	N/A	N/A

- Nearly three-quarters of the respondents (72%) used some sort of watercraft on this trip to Waldo Lake.
- The most popular type of watercraft was a canoe (23%), followed by an inflatable boat (15%).
- No respondents reported using a cruiser that was greater than 24 feet in length.
- Respondents reported the following types of watercraft for the “other” category:
 - Second kayak (11)
 - Second canoe (7)
 - Catamaran (1)
 - Dingy (1)
 - Drift boat (1)

Table 5. Type of Watercraft Used by Distance Traveled (Percent)

	Distance Traveled				
	1-75	76-150	151-200	201 or greater	Total
Runabout (<25 feet)	8.5	21.3	14.8	4.3	13.7
Sailboat	4.7	5.5	18.5	13.0	9.5

- Respondents in the two lower distance brackets were more likely to report using a runabout (<25 feet) at Waldo Lake.
- Respondents that traveled more than 150 miles from their permanent home were more likely to use a sailboat.
- No significant differences were noted for the other types of boats or by gender or type of visit.

Waldo Lake boaters were classified based on the primary source of power for their primary boat. Those using gas powered boats for their primary boat were classified as motorized boaters while those using other power sources were classified as non-motorized boaters. In the remainder of this report, these two types of boaters are compared, along with land-based visitors to Waldo Lake.

Table 6. Primary and Secondary Boat Power of Watercraft Users

	Primary Boat Power	Secondary Boat Power
	-----Percent-----	
Type:		
Paddle/oar	58.3	20.0
Gas	25.9	48.5
Wind/sail	14.6	3.8
Electric	1.3	27.7
Diesel	0.0	0.0
Horsepower (mean)	58	13
(If motorized) power source used:		
2 cycle	16.5	61.9
4 cycle	83.5	38.1

- The most popular type of boat power for a respondent's primary boat was paddle/oar (58%), followed by gas (26%).
- For secondary boat power, gas motors were the most popular type of power (49%).
- The mean horsepower for primary boat power was 58 hp, while the mean horsepower for secondary boat power was 13 hp.
- Over three-fourths of motorized boat users (84%) reported that their primary power source was 4 cycle, while the majority (62%) of secondary power sources were 2 cycle engines.

Respondents who used electric boat motors were asked a separate set of questions regarding this power source.

Table 7. Electric Motor Use at Waldo Lake

	Percent
Battery source used:	
12 volt battery	95.1
24 volt battery	4.9
Charging Method:	
Electric charger at home	39.0
Electric charger on site	29.3
Other (generator, car charger)	17.1
Solar charger	9.8
Gas powered charger on your vessel	4.9
Would you support a solar powered recharge station at the surrounding boat ramps that would be funded by a user fee?	
Yes	87.8
No	12.2
If yes, how often would you use it?	
Sometimes	30.6
Often	30.6
Always	19.4
Not sure	13.9
Never	5.6

- Nearly all of these respondents had a 12-volt battery (95%).
- Nearly two-fifths of these respondents used an electronic charger at home (39%), while nearly one-third used a charger on-site (29%).
- Approximately one-fifth of the respondents (17%) selected the “other” category, which included five respondents who reported using a car charger and two respondents who reported using a generator.
- Nearly all of the electric motor users (88%) supported the idea of having a solar-powered charging station at Waldo Lake.
- The majority of these respondents said that they would use the solar-powered charging station often/always (50%) or sometimes (31%).

Visitor Perceptions

Respondents were asked to rate their level of agreement with several statements pertaining to their recreation experience at Waldo Lake on this trip, including several statements about the possible impact that other recreation users may have had on their experience. These statements have been organized in the table below by separating the positively - worded statements from the negatively – worded statements.

An additional section then asked respondents a series of specific questions about their recreation experience at Waldo Lake on this trip. Over half of these questions pertained to the possible effects of motorized boating.

Table 8. Visitor Perceptions about Waldo Lake

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Mean
(Positively-worded statements: Higher mean score is more positive response)						
	-----Percent-----					
I thoroughly enjoyed my trip	.2	1.6	2.8	30.1	65.2	4.58
I thought the recreation area and its surroundings were in good condition	<1	2.1	3.5	35.4	58.0	4.48
My trip was well worth the money I spent to take it	<1	3.5	11.9	28.3	55.4	4.34
(Negatively-worded statements: Lower mean score is more positive response)						
	-----Percent-----					
I did not participate in some boating activities because of crowded conditions at the lake	80.9	16.7	1.5	<1	<1	1.23
I stayed off the lake during parts of the day because there were too many boats on the lake	79.0	19.2	1.5	<1	---	1.23
I avoided my favorite parts of Waldo Lake because there were too many people	71.7	20.2	3.6	3.4	1.1	1.42
There were too many people at the lake	68.2	25.2	3.3	2.1	1.2	1.43
There were too many watercraft on the lake	71.6	16.8	7.3	2.6	1.7	1.46
I wish there were more watercraft on the lake during my visit	74.0	10.8	6.3	7.3	1.6	1.52
My trip was not as enjoyable as I expected it to be	63.3	25.9	5.4	4.2	1.2	1.54
The number of people at the recreation area reduced my enjoyment	60.4	30.3	4.2	4.2	<1	1.55
I was disappointed with some aspects of my trip	53.5	25.8	7.3	12.4	<1	1.81
The behavior of other people at the recreation area lowered the quality of my experience	54.3	25.4	5.8	11.2	3.3	1.84

Response Code: 1 = “Strongly disagree” and 5 = “Strongly agree”

Nearly all of the respondents showed agreement with the following statements:

- I thoroughly enjoyed my trip (4.58)
 - I thought the recreation area and its surroundings were in good condition (4.48)
 - My trip was well worth the money I spent to take it (4.34)
- There was strong agreement that the number of other people and the amount of watercraft use on the lake did not impact the respondents' recreation experience negatively.

Table 9. Visitor Perceptions about Waldo Lake by Gender, Type of Visit, Type of User and Distance Traveled (Mean)

(Positively-worded statements: Higher mean score is more positive response)				
	Gender			
	Male	Female	Total	
My trip was well worth the money I spent to take it	4.26	4.46	4.33	
	Type of Visit			
	First	Repeat	Total	
I thought the recreation area and its surroundings were in good condition	4.63	4.42	4.47	
	Type of User			
	Land-Based	Motorized Watercraft	Non-Motorized Watercraft	Total
I thoroughly enjoyed my trip	4.55	4.39	4.67	4.58
My trip was well worth the money I spent to take it	4.33	4.08	4.43	4.34

Response code: 1 = "Strongly disagree" and 5 = "Strongly agree"

(Negatively-worded statements: Lower mean score is more positive response)					
	Type of User				
	Land-Based	Motorized Watercraft	Non-Motorized Watercraft	Total	
I wish there were more watercraft on the lake during my visit	1.27	2.23	1.40	1.52	
I did not participate in some boating activities because of crowded conditions at the lake	1.75	1.16	1.22	1.23	
	Distance Traveled (miles)				
	1-75	76-150	151-200	201 or greater	Total
I avoided my favorite parts of Waldo Lake because there were too many people	1.36	1.40	1.40	1.93	1.43
I was disappointed with some aspects of my trip	1.63	2.01	1.82	1.89	1.83

Response code: 1 = "Strongly disagree" and 5 = "Strongly agree"

Female respondents were significantly more likely than males to feel that their trip to Waldo Lake was well worth the money they spent to take it.

- Repeat visitors were less likely than first-time visitors to agree that the recreation area and its surroundings were in good condition.
- Non-motorized watercraft users were less likely to agree that they wished more watercraft were on the lake during their visit, while motorized watercraft users were less likely to agree with the following statements:
 - I thoroughly enjoyed my trip
 - My trip was well worth the money I spent to take it
 - I did not participate in some boating activities because of crowded conditions at the lake
- Respondents that traveled the shortest distances to Waldo Lake from their home were less likely to agree that they avoided some of their favorite parts of Waldo Lake because there were too many people, and also that they were disappointed with some aspects of their trip.

Table 10. Additional Visitor Perceptions

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean
	-----Percent-----					
Pollution from motorized boating needs to be controlled	<1	1.6	3.5	30.5	63.7	4.55
The shorelines are in good condition at Waldo Lake	<1	4.7	17.5	35.0	42.7	4.15
Motorized boating has a negative impact on primitive recreation experiences	3.7	8.1	12.8	25.3	50.0	4.10
Certain sections of the lake should be limited to non-motorized boating	7.4	13.0	11.6	21.2	46.7	3.87
Motorized activities negatively impact wildlife	4.2	10.5	22.3	21.2	41.9	3.86
Litter is not a problem at Waldo Lake	4.0	11.6	19.3	39.3	25.8	3.71
Motorized boating has <u>no</u> effect on water quality	66.5	26.7	5.3	1.2	.2	1.42

Response Code: 1 = "Strongly disagree" and 5 = "Strongly agree"

- Nearly all of the respondents (93-94%) agreed that pollution from motorized boating needs to be controlled at the lake and *did not agree* that motorized boating has no effect on water quality.
- Over three-fourths of the respondents (78%) agreed that the shorelines are in good condition at Waldo Lake and approximately two-thirds of the respondents (65%) felt that litter is not a problem at Waldo Lake; however, almost one-fifth of the respondents were neutral in responding to these statements.
- Three-fourths of the respondents (75%) agreed that motorized boating negatively impacts primitive recreation experiences, and over two-thirds of the respondents (68%) agreed that certain sections of the lake should be limited to non-motorized boating.

Table 11. Additional Visitor Perceptions by Type of Visit and Type of User (Mean)

	Type of Visit			
	First	Repeat	Total	
Motorized boating has <u>no</u> effect on water quality	1.28	1.47	1.42	
	Type of User			
	Land-based	Motorized Watercraft	Non-Motorized Watercraft	Total
Pollution from motorized boating needs to be controlled	4.53	3.90	4.79	4.55
The shorelines are in good condition at Waldo Lake	4.13	3.87	4.28	4.16
Motorized boating has a negative impact on primitive recreation experiences	4.14	2.74	4.55	4.10
Certain sections of the lake should be limited to non-motorized boating	4.00	2.11	4.41	3.86
Motorized activities negatively impact wildlife	3.78	2.56	4.35	3.86
Motorized boating has <u>no</u> affect on water quality	1.42	2.05	1.20	1.42

Response Code: 1 = “Strongly disagree” and 5 = “Strongly agree”

- Respondents visiting Waldo Lake for the first time were less likely to agree that motorized boating has no effect on water quality.
- Motorized watercraft users were more likely than non-motorized or land-based users to feel that motorized boating has no effect on water quality.
- Overall, the largest differences between types of users were noted between motorized watercraft users and non-motorized watercraft users. Motorized watercraft users were far less likely to agree with the following statements:
 - Pollution from motorized boating needs to be controlled
 - The shorelines are in good condition at Waldo Lake
 - Motorized boating has a negative impact on primitive recreation experiences
 - Certain sections of the lake should be limited to non-motorized boating
 - Motorized activities negatively impact wildlife
- No significant differences were noted by gender nor distance traveled.

Management Options

Waldo Lake respondents were asked to indicate if they favored, opposed, or were not sure about several possible management options at Waldo Lake. All of the potential management actions pertained to motorized boating activities and suggested imposing various types of limitations.

Table 12. Management Options at Waldo Lake

	FAVOR	OPPOSE	NOT SURE
	-----Percent-----		
Zone activities to provide for different boat uses at different times	10.0	53.1	36.8
Limit the number of boats on the lake at one time	30.7	55.1	14.2
Zoning the waters to provide for specific uses at specific places	44.0	41.4	14.7
Limit motorized boat motors to 4-cycle engines only	69.3	13.5	17.2
Restrict boat use in certain areas	69.1	19.1	11.9
Only permit non-motorized boats and electric motors in Waldo lake	68.8	21.4	9.8
Limit the size and power of boats using Waldo Lake	79.8	12.6	7.7
Control the level of noise from motorized recreation	85.8	7.4	6.7
Establish “Off Limit” Zones to protect sensitive areas	87.2	8.1	4.7

- The vast majority of respondents favored the establishment of off-limit zones to protect sensitive areas (87%), and felt that management should control the level of noise from motorized recreation (86%).
- Over two-thirds of the respondents (69%) favored the following actions:
 - Limit motorized boat motors to 4-cycle engines only
 - Restrict boat use in certain areas
 - Only permit non-motorized boats and electric motors in Waldo lake
- Over three-quarters of the respondents (80%) favored limiting the size and power of boats using Waldo Lake, while the greatest opposition was noted for limiting the number of boats on the lake at one time (55%).

Table 13. Management Options at Waldo Lake by Type of Visit and Type of User (Percent)

	Type of Visit			
	First	Repeat	Total	
Zoning the waters to provide for specific uses at specific places				
Favor	54.1	40.3	43.8	
Oppose	32.1	44.7	41.5	
Not sure	13.8	15.0	14.7	
	Type of User			
	Land-based	Motorized Watercraft	Non-Motorized Watercraft	Total
Zoning the waters to provide for specific uses at specific places				
Favor	45.4	12.5	54.6	44.2
Oppose	26.9	81.3	34.5	41.1
Not sure	27.7	6.3	10.9	14.7
Only permit non-motorized boats and electric motors in Waldo lake				
Favor	66.4	8.8	90.8	68.7
Oppose	10.1	86.3	4.8	21.5
Not sure	23.5	5.0	4.4	9.8
Limit the size and power of boats using Waldo Lake				
Favor	80.7	52.5	88.6	79.7
Oppose	5.9	36.3	7.9	12.6
Not sure	13.4	11.3	3.5	7.7
Restrict boat use in certain areas				
Favor	65.5	47.5	78.2	68.9
Oppose	14.3	41.3	14.0	19.2
Not sure	20.2	11.3	7.9	11.9
Control the level of noise from motorized recreation				
Favor	81.5	63.8	95.6	85.7
Oppose	8.4	21.3	2.2	7.5
Not sure	10.1	15.0	2.2	6.8
Limit motorized boat motors to 4-cycle engines only				
Favor	65.5	47.5	78.2	68.9
Oppose	14.3	41.3	14.0	19.2
Not sure	20.2	11.3	7.9	11.9
Zone activities to provide for different boat uses at different times				
Favor	14.3	1.3	11.0	10.1
Oppose	45.4	55.0	56.1	52.9
Not sure	40.3	43.8	32.9	37.0

- Only one significant difference was noted between respondents who were repeat visitors and those who were visiting for the first time. Repeat visitors were slightly less likely to favor zoning the lake for specific uses at specific places.
- Seven of the eight management options at Waldo Lake showed significant differences between the types of users.
- Overall, non-motorized watercraft users were more likely to support controlling or limiting motorized water-based activity while motorized watercraft users were more likely to oppose these actions.
- Land-based users were more likely to report uncertainty regarding most of the management issues.

- No significant differences were noted by gender nor distance traveled.

Noise Related Issues

This section asked respondents a series of specific questions regarding the possible impact that noise had on their recreation experience at Waldo Lake on this trip. Respondents were asked whether their overall experience at Waldo Lake has been negatively impacted by human-induced noise; those saying yes were then shown a list of different types of noise and asked to select the types that had interfered with their experience.

An additional section then asked respondents to rate the degree of interference – ranging from not at all to extremely - that motorized sounds had on different aspects of their experience.

Table 14. Types of Noise

	Percent
Power generators	39.3
Dogs	34.8
Motorboats	30.0
Loud music	19.3
Cars/trucks/planes (circle all that apply)	15.7
Other (please list)	42.1

- Overall, one-third of the respondents (33%) reported that their experience was negatively impacted by human-induced noise.
- Among those who were bothered by noise, the major sources of noise included:
 - Power generators (39%)
 - Dogs (35%)
 - Motorboats (30%)
- Over two-fifths of the respondents (42%) reported that their experience was negatively impacted by “other” types of noise, which are listed in Appendix A.

Table 15. Types of Noise by Gender and by Type of User (Percent)

Table 10: Types of Noise by Gender and by Type of User (Percent)				
	Gender			
	Male	Female	Total	
Cars/trucks/planes (circle all that apply)	11.1	25.5	16.1	
	Type of User			
	Land-based	Motorized Watercraft	Non-Motorized Watercraft	Total
Motorboats	12.5	6.3	39.6	29.5
Loud music	12.5	50.0	16.5	19.4

- Female respondents were more likely than males to report that noise from cars/trucks/planes interfered with their experience.

- Non-motorized watercraft users were more likely to report that noise from motorboats interfered with their experiences, while motorized watercraft users were more likely to report that loud music interfered with their experience.
- No significant differences were noted by type of visit or distance traveled.

Table 16. Interference of Motorized Sounds

How much did motorized sounds interfere with your:	Not at all	Slightly	Moderately	Very much	Extremely	Mean
	-----Percent-----					
Appreciation of the historical/cultural significance	85.7	4.4	6.3	1.4	2.1	1.30
Enjoyment of the area	76.0	7.2	10.0	5.3	1.4	1.49
Appreciation of the natural quiet	75.3	6.7	10.0	4.9	3.0	1.53
Appreciation of the sounds of nature	75.8	6.0	9.5	4.9	3.7	1.55

Response Code: 1 = “Not at all” and 5 = “Extremely”

- When queried about the extent to which motorized sounds interfered with various aspects of their recreation experience at Waldo Lake, the vast majority of respondents were “not at all” impacted.

Table 17. Interference of Motorized Sounds by Type of User (Mean)

Did motorized sounds interfere with your:	Type of User			
	Land-based	Motorized Watercraft	Non-Motorized Watercraft	Total
Appreciation of the historical/cultural significance	1.25	1.10	1.38	1.29
Enjoyment of the area	1.32	1.20	1.67	1.49
Appreciation of the natural quiet	1.34	1.20	1.75	1.53
Appreciation of the sounds of nature	1.34	1.20	1.77	1.54

Response Code: 1 = “Not at all” and 5 = “Extremely”

- Significant differences between types of users were noted for all four of the items pertaining to interference from motorized sounds.
- Overall, motorized watercraft users were less likely to report interference of motorized sounds, while non-motorized watercraft users were more likely to report some interference.
- The land-based users were generally in between the motorized and non-motorized watercraft users in their response to these items, but generally were closer to the motorized watercraft users.
- No significant differences were noted by gender, type of visit, nor distance traveled.

Changes at Waldo Lake

Only repeat visitors were asked if changes have occurred at Waldo Lake within the past few years. They were asked to assess possible changes regarding the amount of boating and the environmental quality at Waldo Lake.

Table 18. Changes at Waldo Lake

	Increasing	Not changing very much	Decreasing	Don't know
Within the past few years, do you think the amount of boating use has been:				
	-----Percent-----			
	11.7	32.8	9.7	45.9
Within the past few years, do you think the environmental quality (water quality, noise pollution, litter, etc.) at Waldo Lake has been:	Improved	Not changing very much	Degraded	Don't know
	6.0	31.3	27.1	35.6

- Approximately one-half of the repeat visitors (46%) reported that they did not know if boating use had increased at Waldo Lake, and one-third (33%) indicated that boating use had not changed very much.
- The greatest proportion of repeat visitors (36%) also did not know whether the environmental quality of the lake had changed. Over one-fourth of these respondents (27%), however, felt that the environmental quality of the lake had been degraded.

Table 19. Changes at Waldo Lake by Type of Visit and Type of User (Percent)

Within the past few years, do you think the amount of boating use has been:	Type of User			
	Land-based	Motorized Watercraft	Non-Motorized Watercraft	Total
Increasing	5.6	2.9	17.6	11.7
Not changing very much	28.1	38.2	33.2	32.9
Decreasing	6.7	16.2	8.8	9.7
Don't know	59.6	42.6	40.4	45.7
Within the past few years, do you think the environmental quality (water quality, noise pollution, litter, etc.) at Waldo Lake has been:				
Increasing	1.1	17.6	4.1	6.0
Not changing very much	32.6	41.2	27.5	31.4
Decreasing	15.7	2.9	40.4	26.9
Don't know	50.6	38.2	28.0	35.7

- Motorized watercraft users were more likely to report that the amount of motorized boating has been decreasing, while non-motorized watercraft users were more likely to report that it has been increasing.
- Additionally, motorized watercraft users were more likely to report that the environmental quality has been increasing or not changing very much, while non-motorized users were more likely to report that the environmental quality has been decreasing.

- Land-based users were more likely to report uncertainty about changes in the amount of boating and environmental quality within the past few years.
- Since only respondents who were repeat visitors to Waldo Lake could address this question, significant differences between first time and repeat visitors were not examined.
- No significant differences were noted by gender nor distance traveled.

Crowding and Conflict Issues

This section asked respondents several questions about possible crowding issues. Using a 9-point scale respondents were asked to rate their feelings regarding the level of crowding, the acceptability of the number of other visitors, the possible effects that other people had on their enjoyment, and finally, their desire to see an alternate number of visitors. Respondents were also asked to compare their prior expectations of crowding with their current perception of crowding at Waldo Lake.

Perception of Crowding

Respondents were asked to rate how crowded they felt - from not at all crowded to extremely crowded - at Waldo Lake by selecting a representative number on the 9-point crowding scale.

Table 20. Perception of Crowding

Not at all Crowded		Slightly Crowded		Moderately Crowded		Extremely Crowded			
1	2	3	4	5	6	7	8	9	Mean
40.9	28.6	16.5	7.7	2.8	2.1	<1	<1	<1	2.16

Response Code: 1 = “Not at all crowded” and 10 = “Extremely crowded”

- Overall, crowding appears to be very low at Waldo Lake. Most respondents indicated that they did not feel crowded while recreating at Waldo Lake. The mean score on the 9-point crowding scale was 2.16.
- Over two-thirds of the respondents (70%) rated their feeling of crowdedness as a “1” or “2” on the 9-point scale, indicating that they felt “not at all crowded.”
- Very few respondents indicated that they perceived conditions to be “extremely crowded.”

Table 21. Perception of Crowding by Type of Visit (Mean)

	Type of Visit		
	First	Repeat	Total
Perception of Crowding	1.83	2.27	2.16

Response Code: 1 = “Not at all crowded” and 10 = “Extremely crowded”

- Respondents visiting Waldo Lake for the first time reported feeling less crowded.
- No significant differences were noted by gender, type of user, nor distance traveled.

Acceptability of the Number of Other Visitors

Respondents were asked to rate the acceptability of the number of visitors by selecting a representative number on the 9-point scale.

Table 22. Acceptability of the Number of Other Visitors (Percent)

Very Unacceptable		Neither Acceptable nor Unacceptable					Very Acceptable		
1	2	3	4	5	6	7	8	9	Mean
<1	<1	2.1	4.7	17.3	7.7	16.6	18.2	32.2	7.11

Response Code: 1 = "Very unacceptable" 9 and = "Very acceptable"

- When the respondents were queried about the acceptable level of other people at the lake, they reported a mean score of 7.11 on the 9-point scale, indicating that the number of people at the lake was generally acceptable.
- Approximately one-third of the respondents (32%) gave the highest possible rating of acceptability for the number of people they saw ("9" on the 9-point scale).
- Over two-thirds of the respondents rated their acceptability of the number of other people they saw as a "7" or higher.
- Few visitors responded in the "unacceptable" range of the response scale.

Table 23. Acceptability of the Number of Other Visitors by Type of User (Mean)

	Type of User			
	Land-based	Motorized Watercraft	Non-Motorized Watercraft	Total
Acceptability Rating	7.08	6.20	6.92	6.95

Response Code: 1 = "Very unacceptable" 9 and = "Very acceptable"

- Respondents participating in motorized watercraft activities considered the number of people they saw as less acceptable than those participating in land-based or non-motorized watercraft activities.
- No significant differences were noted by gender, type of visit, nor distance traveled.

Effects on Enjoyment Caused by the Number of Other Visitors

Respondents were asked to rate the possible effect that other visitors may have had on their enjoyment by selecting a representative number on the 9-point scale.

Table 24. Effects on Enjoyment Caused by the Number of Other Visitors (Percent)

Detracted from your Enjoyment			Neither Enhanced nor Detracted from your Enjoyment			Enhanced your enjoyment			
1	2	3	4	5	6	7	8	9	Mean
<1	1.6	3.7	9.1	47.0	10.7	7.7	7.9	11.4	5.70

Response Code: 1 = “Extremely detracted” and 9 = “Extremely enhanced”

- When respondents were asked how the number of other people at the lake affected their enjoyment, they reported a mean score of 5.70, indicating a slightly positive effect of other visitors.
- Almost half of the respondents (47%) reported a “5” on the 9-point scale, indicating that the number of people neither enhanced nor detracted from their enjoyment.
- No significant differences were noted by gender, type of visit, type of user, nor distance traveled.

Desire to See Alternate Number of Visitors

Respondents were asked to rate their desire to see a different amount of visitors, compared to the amount that they saw, by selecting a representative number on the 9-point scale.

Table 25. Desire to See Alternate Number of Visitors (Percent)

Far Less People at the Lake			The Same Number of People as You Saw			Far More People at the Lake			
1	2	3	4	5	6	7	8	9	Mean
7.2	3.0	9.8	14.7	53.5	7.7	3.3	<1	<1	4.45

Response Code: 1 = “Far less people” and 9= “Far more people”

- When respondents were queried about the number of people they would like to have seen during their visit to Waldo Lake, over half of the respondents (54%) indicated that they would have liked to see about the same number of people as they actually saw.
- Those indicating a preference for a different number were more likely to prefer seeing less, rather than more, people at the lake.
- No significant differences were noted by gender, type of visit, type of user, nor distance traveled.

Table 26. Perception of the Number of Other Visitors Compared with Expectations

How did the number of people you saw during your visit to Waldo Lake compare with what you expected to see?	Frequency	Percent
A lot less than you expected	89	20.7
A little less than you expected	84	19.5
About what you expected	102	23.7
A little more than you expected	34	7.9
A lot more than you expected	20	4.7
You didn't have any expectations	101	23.5
Total	430	100.0

- When queried further about the number of people seen at Waldo Lake, one-fourth of the respondents (24%) said the number of people they saw was about what they expected, while an equal percentage of the respondents said they didn't have any expectations.
- Two-fifths of the respondents (40%) stated that the number of people they saw at Waldo Lake was *less* than they expected.
- Only a small minority of the respondents (13%) reported that the number of people they saw was *more* than they expected.

Overall Satisfaction

Respondents were asked to rate their overall experience at Waldo Lake by selecting a representative number on a 10-point satisfaction scale. The scale ranged from 1 (worst possible experience) to 10 (best possible experience).

Table 27. Overall Satisfaction

Overall Satisfaction (%)	1	2	3	4	5	6	7	8	9	10	Mean
	0	0	0	<1	<1	1.4	11.7	36.8	24.4	24.4	8.54

Response Code: 1 = "Worst possible experience" and 10 = "Best possible experience"

- Generally, respondents' overall satisfaction scores were very high. The mean score was 8.54 on a 10-point satisfaction scale.
- The majority of the respondents (86%) rated their overall satisfaction "8" or higher on the satisfaction scale.
- No respondents rated their overall experience as a "3" or lower on the scale.

Table 28. Overall Satisfaction by Distance Traveled and Type of User (Mean)

	Distance Traveled				
	1-75	76-150	151-200	201 or greater	Total
Overall Satisfaction	8.59	8.24	8.65	8.87	8.53
	Type of User				Total
	Land-based	Motorized Watercraft	Non-Motorized Watercraft		
Overall Satisfaction	8.47	8.19	8.70		8.54

Response Code: 1 = "Worst possible experience" and 10 = "Best possible experience"

- Respondents who traveled over 200 miles to Waldo Lake reported having a better experience at the lake than those traveling shorter distances.
- Non-motorized watercraft users reported the highest satisfaction ratings, while motorized watercraft users reported the lowest ratings.
- No significant differences were noted by gender or type of visit.

Conclusions

This report provides information about the characteristics, behaviors, and attitudes of visitors to Waldo Lake in the Willamette National Forest in central Oregon. The results published in this report are a compilation and analysis of the data collected at different campsites, boat ramps, and trailheads at Waldo Lake during the period of May 20 through August 1, 2003. The instrument was used to query visitors about their perceptions, opinions about potential management options, and satisfaction levels. The results indicate that visitors to Waldo Lake are generally quite satisfied with their visits. However, there are significant differences between the perceptions of different user groups. In particular, non-motorized and motorized watercraft users have very different opinions regarding potential management options and changes at Waldo Lake.

Regarding satisfaction levels, most respondents were clearly satisfied with their recreation experience and with the satisfaction measures listed on the survey instrument. While the data suggests that there is room for improvement in a few areas at Waldo Lake, it is equally important to recognize the numerous positive scores for various satisfaction indicators.

The crowding and conflict section of the study asked visitors about their perceptions of these issues at Waldo Lake. Overall, the visitors did not feel crowded and there was a high level of acceptability of other visitors at Waldo Lake. However, opinions about potential management options differed between user types.

Several results of this study can help resolve the issue of whether motorized boating should be allowed to continue on Waldo Lake. First, the level of conflict among current Waldo Lake users is low. Crowding and conflict indicators show consistent low levels and satisfaction of all user groups is high. Noise is not a major concern, as only one-third of the visitors reported being impacted negatively by noise at Waldo Lake, and power generators and noise from dogs were more problematic than noise from motorboats. Surprisingly, the motorized boaters showed lower overall satisfaction than the non-motorized users. Thus, even though non-motorized boaters expressed greater concern about impacts of motor boats, they still generally had very positive experiences at the lake and some of the problems they encountered were not strictly attributable to motorized boats.

Secondly, Waldo Lake users seem more concerned about environmental quality than about potential conflicts between user groups at the lake. All users generally recognized the potential impact of boat motors on water quality. Most of the existing motorboats already use 4 cycle engines, which are both quieter and cleaner than 2 cycle engines. This may contribute to the low levels of conflict among current users.

Thirdly, there was consensus about some of the proposed management options. For example, all user groups supported limiting the size and horsepower of motors allowed on the lake, and restricting motorized boating to 4 cycle or electric engines.

Finally, the issue of motor use is complicated by the fact that many non-motorized boats (i.e. sailboats) use motors as a secondary power source. The majority of these motors are 2 cycle engines. Depending on their level of use, these motors on the lake could be as harmful as, or worse, than those used by the true motorboats on the lake. Any future management changes should strive to treat user groups equally while protecting the quality of the environment and recreation experience, and user perceptions should be monitored over time in order to assess the effectiveness of these actions.

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Appendix A: Open-ended Comments

Table 29. Suggested Improvements

If you could ask resource managers to improve some things about the way people experience the Waldo Lake area, what would you ask them to do?	Frequency
Eliminate motorboats	128
Add showers	46
Improve trails/facilities	33
Reduce fees	32
Decrease boating restrictions	29
Improve boat access	25
Increase information/education	20
Control mosquitoes	18
Reduce crowding	15
Separate RV campers from other campers	14
Enforce regulations	10
Miscellaneous	6
Total	376

Table 30. Types of Behavior

How did other people's behavior reduce your enjoyment?	Frequency
Noise	27
Speeding Motorboats	8
People Complaining	7
Dogs	6
Biking	4
Crowding	3
Total	55

Table 31. Other Types of Noise

	Frequency
Loud people	11
Rude people	3
Generator use	2
Profanity use	1
Vandalism	1
Total	18

Table 32. Name of Organized Group

	Frequency
Fur Bearers Rendezvous	3
Powder House Dive Inc.	3
Family Reunion	2
Jefferson State Dive Locker	2
SGI USA (Buddhism group)	2
Windsurfer Group	2
Club Stop Motorboats	1
Diver Head	1
Oregon Trappers Association	1
The Wild Family	1
Wacap Project Team	1
Waldo Divers	1
Total	20

Table 33. Site Where Most Time Was Spent

Where did you spend the most time on this trip?	
Site	Frequency
On lake	184
Campgrounds	135
Trails	36
Islet campground	22
North Waldo campground	19
Shadow Bay area	16
Shadow Bay campground	14
Waldo lake trail	14
North Waldo area	13
Beach	10
Dispersed sites	9
All around area	9
Islet boat ramp	7
Islet area	6
Lake trail	5
Bike trails	4
Horse camp	4
Taylor Burns trail	4
North Waldo boat ramp	4
Islet picnic area	3
Shadow Bay area	3
Shadow Bay boat ramp	3
Picnic area	2
Islet beach	2
Hiking trails	2
South shore	2
West side	2
Total	534

Table 34. Other Places Visited on This Trip

Site	Frequency
Salt Creek Falls	36
Odell Lake	22
Crescent Lake	15
Deschutes	8
Charlton Lake	7
Crater Lake	7
Cultus Lake	5
Gold Lake	5
Columbia River Gorge	4
Taylor Burn	4
Davis Lake	3
Dexter Lake	3
Rigdon Lake	3
Betty Lake	2
Blue Lake	2
Bullards Beach	2
Dune City	2
Florence	2
Hosmer Lake	2
Lake Siskyou	2
Mccredie Hot Springs	2
Mt. Fuji	2
Oregon Dunes	2
Sunriver	2
Wickiup	2
Bobby Lake	2
Clear Lake	1
Cougar Reservoir	1
Crane Prairie	1
Diamond Creek Falls	1
Diamond Peak Wilderness	1
Elk Lake	1
Eugene	1
Fern Ridge	1
Finley Wildlife Refuge	1
Frissel Crossing	1
Hells Canyon Area	1
Hills Creek Reservoir	1
Huckleberry Mountain	1
Irish Lake	1
Irish Mountain	1
Lava Beds	1
Lava Lake	1
Medicine Lake	1
Middle Fork Trail	1
Midnight Lake	1
Miller Lake	1

Table 34. Other Places Visited on This Trip (continued)

Site	Frequency
Mount Shasta	1
Mt. Hood	1
North Fork River	1
Oregon Caves	1
Portland	1
Rogue River	1
San Francisco	1
South Sister	1
Trinity River	1
Tumalo Falls	1
Umpqua River	1
Waldo Wilderness`	1
Whiskytown Lake	1
Willamette	1
Total	183

Table 35. Permanent Home State

State	Frequency
OR	401
CA	10
WA	8
FL	2
AK	1
AZ	1
NJ	1
NV	1
NY	1
OH	1
WI	1
Total	428

Table 36. Permanent Home Zip Code

Zip Code	Frequency
97405	56
97701	17
97463	15
97403	14
97330	9
97402	8
97401	7
97739	7
97006	6
97007	6
97493	6
97702	6
97123	5
97210	5
97219	5
97225	5
97231	5
97470	5
97492	5
97759	5
97010	4
97060	4
97202	4
97204	4
97206	4
97212	4
97239	4
97424	4
97455	4
97477	4
97014	3
97015	3
97027	3
97045	3
97116	3
97131	3
97321	3
97326	3
97370	3
97409	3
97504	3
97754	3

97756	3
94087	2
97016	2
97019	2
97024	2
97026	2
97119	2
97148	2
97201	2
97214	2
97221	2
97223	2
97229	2
97233	2
97242	2
97303	2
97331	2
97333	2
97381	2
97392	2
97404	2
97426	2
97448	2
97456	2
97457	2
97478	2
97527	2
97537	2
97707	2
97720	2
97760	2
97846	2
99208	2
10035	1
32641	1
34653	1
43223	1
53562	1
85303	1
89523	1
91935	1
91941	1
92802	1
93022	1

94705	1
95632	1
95648	1
96134	1
97011	1
97013	1
97017	1
97030	1
97031	1
97032	1
97034	1
97038	1
97042	1
97048	1
97068	1
97070	1
97071	1
97109	1
97111	1
97128	1
97140	1
97213	1
97215	1
97224	1
97230	1
97236	1
97266	1
97267	1
97301	1
97302	1
97308	1
97352	1
97366	1
97374	1
97378	1
97380	1
97384	1
97391	1
97394	1
97412	1
97413	1
97420	1
97431	1
97439	1

97452	1
97453	1
97473	1
97480	1
97487	1
97498	1
97520	1
97603	1
97639	1
97722	1
97833	1
97885	1
98258	1
98470	1
98520	1
98626	1
98665	1
98682	1
98764	1
99801	1
Total	415

2003 Recreation Survey

Appendix B: Survey Instrument

Waldo Lake Visitor Survey

Survey ID#_____ Interviewer_____ # of people at site **mean=14.8**
 Date_____ Location_____ # of watercrafts at site **mean=3.86**
 Time_____ Gender Male= **66.0** Female= **34.0**

Interviewer Script Hello, I am (name and affiliation, i.e. University student, etc.). Have you already been approached and interviewed? **Yes – Thank you for your time No - Continue**
 We are conducting a study for the US Forest Service of visitors to the Waldo Lake recreation areas. The information visitors give us will be used to help managers better serve the visiting public and protect Waldo Lake's natural and cultural resources. You have been selected as part of a random sample of visitors to participate in this survey. Participation is voluntary and if you choose to participate, everything you tell us will be kept strictly confidential. The survey will take about 10 minutes to complete. May we proceed with the interview?

Yes - Go to question If NO - Thank you for your time

1. Is this your first visit to Waldo Lake? **25.4** Yes **74.6** No
 [If no], In what year did you make your first visit to Waldo Lake? _____year
2. How many days did you spend at Waldo Lake in **2002**? **mean=4.40** Days
3. How many days do you plan to spend at Waldo Lake during this trip? **mean=3.37** Days ____ Not Sure

4. In what activities on this list did you participate (or do you plan to participate in) during this recreation visit at Waldo Lake?		5. Which of those is your primary activity for this recreation visit to Waldo Lake?
Question 4 answers		Question 5 answer
98.1	General/other-relaxing, hanging out, escaping heat, noise, etc.	40.1
57.4	Nonmotorized water travel (sailboarding, kayaking, rafting, canoe, etc.) (circle all that apply)	19.0
73.7	Camping in developed sites (family or group sites)	16.7
21.4	Motorized water travel (boats, ski sleds, etc.)	5.6
29.8	Bicycling, including mountain bikes (circle all that apply)	3.8
75.6	Other nonmotorized activities (swimming, games, and sports)	3.3
8.1	Backpacking, camping in unroaded areas	2.8
72.6	Picnicking and family day gatherings in developed sites (family or group sites) (circle all that apply)	2.3
77.7	Hiking or walking	1.4
1.6	Horseback riding	1.2
91.6	Viewing wildlife, birds, flowers, fish, etc. on NF lands (circle all that apply)	<1
96.5	Viewing natural features such as scenery, flowers, etc. on NF lands (circle all that apply)	<1

5.1	Visiting a nature center or nature trail (circle all that apply)	<1
20.0	Nature study	<1
2.3	4-wheelers, dirt bikes, etc. (circle all that apply)	<1
54.9	Gathering mushrooms, berries, firewood, or other natural products (circle all that apply)	<1
28.6	Fishing—all types	<1
18.4	Visiting historic and prehistoric sites/areas (circle all that apply)	0
<1	Hunting—all types	0
30.9	Driving for pleasure on roads	0
0	Other motorized land/air activities (plane, other)	0

5a. What areas of the lake did you visit on this trip? (ASK REpondent TO DRAW ROUTE FOLLOWED ON MAP)

5b. Where did you spend the most time on this trip

_____ Name of location(s)
(CIRCLE LOCATION(S) ON MAP AND LABEL **MOST**)

6. Where is your permanent home? Country USA=**99.5** /State OR=**93.3**/County_____ /Zip code_____

7. About how many miles is it from your permanent home to Waldo Lake? **mean=231.79** (median=110) miles

8. How many people are in your group on this trip to Waldo Lake? **mean=4.36** people

8a. Are you part of an organized group? **5.1** Yes **94.9** No

8b. If yes, please list the name of the group: _____

This section of the survey asks you about your use of watercraft on this trip to Waldo Lake.

9. **72.3** Yes **27.7** No Did you/will you use some sort of watercraft on this trip to Waldo Lake?

(IF YES, ask the rest of the questions on this page)

10. What type of watercraft did you use on this trip? [Check the type of each boat]

11. What is the length of this boat? [Write length of each boat next to the type]

23.3	16 ft.	Canoe	9.5	20 ft.	Sailboat
14.4	16 ft.	Kayak	----	----	Cruiser (≥ 25 ft)
4.7	16 ft.	Fishing/Bass Boat	<1	----	Pontoon Boat
14.7	10 ft.	Inflatable boat	<1	10 ft.	Sailboard
14.2	19 ft.	Runabout (<24 feet)			Other_____
		Other_____			

12. What is your primary boat power?

25.9	Gas	58.3	Paddle/Oar
----	Diesel	14.6	Wind/Sail
1.3	Electric		Other, _____

What is the horsepower of your primary power source? **58** hp

(If motorized) Is your primary power source:

16.5 2 cycle **83.5** 4 cycle

What is your secondary boat power?

48.5	Gas	20.0	Paddle/Oar
----	Diesel	3.8	Wind/Sail
27.7	Electric		Other, _____

What is the horsepower of your secondary power source? **13** hp

(If motorized) Is your secondary power source:

61.9 2 cycle **38.1** 4 cycle

ASK ONLY FOR ELECTRIC MOTOR USERS:

13. What type of battery source do you use? (How many batteries)

95.1 12 volt battery **4.9** 24 volt battery Other battery type: _____

14. How do you charge your battery(ies)?

39.0	Electric charger at home	9.8	Solar charger
29.3	Electric charger on site	17.1	Other (generator, car charge)
4.9	Gas powered charger on your vessel		

15. Would you support a solar powered recharge station at the surrounding boat ramps that would be funded by a user fee? **87.8** yes **12.2** no

16. If yes, how often would you use it?

13.9	Not Sure	5.6	Never	30.6	Sometimes	30.6	Often	19.4	Always
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17. Following are some statements about this visit to Waldo Lake. For each statement, please circle the response that best describes your feelings about your visit to this area. If the statement does not apply, do not answer the question.

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Mean
(Positively-worded statements: Higher mean score is more positive response)						
I thoroughly enjoyed my trip	.2	1.6	2.8	30.1	65.2	4.58
I thought the recreation area and its surroundings were in good condition	.9	2.1	3.5	35.4	58.0	4.48
My trip was well worth the money I spent to take it	.9	3.5	11.9	28.3	55.4	4.34
(Negatively-worded statements: Lower mean score is more positive response)						
I did not participate in some boating activities because of crowded conditions at the lake	80.9	16.7	1.5	<1	<1	1.23
I stayed off the lake during parts of the day because there were too many boats on the lake	79.0	19.2	1.5	<1	---	1.23
I avoided my favorite parts of Waldo Lake because there were too many people	71.7	20.2	3.6	3.4	1.1	1.42
There were too many people at the lake	68.2	25.2	3.3	2.1	1.2	1.43
There were too many watercraft on the lake	71.6	16.8	7.3	2.6	1.7	1.46
I wish there were more watercraft on the lake during my visit	74.0	10.8	6.3	7.3	1.6	1.52
My trip was not as enjoyable as I expected it to be	63.3	25.9	5.4	4.2	1.2	1.54
The number of people at the recreation area reduced my enjoyment	60.4	30.3	4.2	.2	<1	1.55
I was disappointed with some aspects of my trip	53.5	25.8	7.3	12.4	<1	1.81
The behavior of other people at the recreation area lowered the quality of my experience	54.3	25.4	5.8	11.2	3.3	1.84
(If agree or strongly agree with above statement) How did other people's behavior reduce your enjoyment?						

18. Would you favor or oppose each of the following management actions for Waldo Lake:

	FAVOR	OPPOSE	NOT SURE	Mean
Establish "Off Limit" Zones to protect sensitive areas	87.2	8.1	4.7	1.17
Control the level of noise from motorized recreation	85.8	7.4	6.7	1.21
Limit the size and power of boats using Waldo Lake	79.8	12.6	7.7	1.28
Only permit non-motorized boats and electric motors in Waldo lake	68.8	21.4	9.8	1.41
Restrict boat use in certain areas	69.1	19.1	11.9	1.43
Limit motorized boat motors to 4-cycle engines only	69.3	13.5	17.2	1.48
Zoning the waters to provide for specific uses at specific places	44.0	41.4	14.7	1.71
Limit the number of boats on the lake at one time	30.7	55.1	14.2	1.83
Zone activities to provide for different boat uses at different times	10.0	53.1	36.8	2.27

19. For each item below please circle the response that is closest to the way you feel about Waldo Lake.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean
Pollution from motorized boating needs to be controlled	<1	1.6	3.5	30.5	63.7	4.55
The shorelines are in good condition at Waldo Lake	<1	4.7	17.5	35.0	42.7	4.15
Motorized boating has a negative impact on primitive recreation experiences	3.7	8.1	12.8	25.3	50.0	4.10
Certain sections of the lake should be limited to non-motorized boating	7.4	13.0	11.6	21.2	46.7	3.87
Motorized activities negatively impact wildlife	4.2	10.5	22.3	21.2	41.9	3.86
Litter is not a problem at Waldo Lake	4.0	11.6	19.3	39.3	25.8	3.71
Motorized boating has <u>no</u> affect on water quality	66.5	26.7	5.3	1.2	<1	1.42

20. Has your overall experience to Waldo Lake been negatively impacted by human-induced noise?

32.6 yes **67.4** no

If yes, which types of noise (check all that apply)

39.3 Power generators **15.7** Cars/trucks/planes (circle all that apply)

30.0 Motorboats **19.3** Loud music

34.8 Dogs **42.1** Other (please list) (loud people and pets)

21. How much did the sounds of motorized human activity (cars, airplanes, boats, etc.) interfere with the following aspects of your trip to Waldo Lake?

Did motorized sounds interfere with your:	Not at all	Slightly	Moderately	Very much	Extremely	Mean
Appreciation of the historical/cultural significance	85.7	4.4	6.3	1.4	2.1	1.30
Enjoyment of the area	76.0	7.2	10.0	5.3	1.4	1.49
Appreciation of the natural quiet	75.3	6.7	10.0	4.9	3.0	1.53
Appreciation of the sounds of nature	75.8	6.0	9.5	4.9	3.7	1.55
For repeat visitors only:			Circle answer below			
22. Within the past few years, do you think the amount of boating use has been:			Increasing	Not changing very much	Decreasing	Don't know
			11.7	32.8	9.7	45.9
			Circle answer below			
23. Within the past few years, do you think the environmental quality (water quality, noise pollution, litter, etc.) at Waldo Lake has been:			Improved	Not changing very much	Degraded	Don't know
			6.0	31.3	27.1	35.6

24. On a scale of one to ten, how would you rate your overall experience at Waldo Lake, with a rating of 10 being the best possible experience, and a rating of 1 being the worst possible experience you can imagine?
mean=8.54

25. If you could ask resource managers to improve some things about the way people experience the Waldo Lake area, what would you ask them to do?

26. How did the number of people you saw during this visit to Waldo Lake compare with what you expected to see?

- 20.7** A lot less than you expected
19.5 A little less than you expected
23.7 About what you expected
7.9 A little more than you expected
4.7 A lot more than you expected
23.5 You didn't have any expectations

27. During this visit how crowded did you feel at Waldo Lake? [Circle one number]

1	2	3	4	5	6	7	8	9
40.9	28.6	16.5	7.7	2.8	2.1	<1	<1	<1
Not at all Crowded		Slightly Crowded		Moderately Crowded		Extremely Crowded		

28. How acceptable was the number of other people you saw at the lake on this trip? [Circle one number]

+4	+3	+2	+1	0	-1	-2	-3	-4
32.2	18.2	16.6	7.7	17.3	4.7	2.1	<1	<1
Very Acceptable			Neither acceptable nor unacceptable				Very Unacceptable	

29. On this trip, would you say that the number of other people at the lake? [Circle one number]

+4	+3	+2	+1	0	-1	-2	-3	-4
11.4	7.9	7.7	10.7	47.0	9.1	3.7	1.6	<1
Enhanced your enjoyment			Neither enhanced nor detracted from your enjoyment			Detracted from your enjoyment		

30. Overall, on this trip, would you like to have seen: [Circle one number]

+4	+3	+2	+1	0	-1	-2	-3	-4
<1	<1	3.3	7.7	53.5	14.7	9.8	3.0	7.2
Far more people at the lake				The same number of people as you saw		Far less people at the lake		

31. Was Waldo Lake your primary destination for this trip? **98.6** Yes **1.4** No

32. Finally, on this trip did you recreate just at Waldo Lake or did you go to other National Forests, parks, or recreation areas? **77.6** Just Waldo Lake **22.4** Other places (please list) _____